

What Is Claimed Is:

1. A flow rate control device comprising:

a regulator for reducing a pressure of a supplied liquid;

a flow rate adjustment valve for adjusting an opening degree of its valve provided to a passage, the flow rate adjustment valve being connected in series downstream of the regulator;

a flow rate sensor for detecting a flow rate of the liquid;

and

a control portion for controlling the regulator by finding a regulator controlled degree in accordance with a detection value of the flow rate sensor and a target flow rate value, and for controlling the flow rate adjustment valve by finding a valve opening controlled degree of the flow rate adjustment valve.

2. The flow rate control device according to claim 1, wherein the regulator controlled degree is found so that a deviation between the detection value of the flow rate sensor and the target flow rate value becomes zero, and the valve opening degree is increased when the regulator controlled degree is over a predetermined threshold.

3. The flow rate control device according to claim 1, wherein, when the target flow rate value is greater than a flow rate corresponding to a predetermined control switching point, the valve opening is increased/decreased to control the flow rate

while keeping a setting of the regulator almost constant, and wherein, when the target flow rate value is smaller than the flow rate corresponding to the predetermined control switching point, the regulator is operated to control the flow rate while keeping the valve opening almost constant.

4. The flow rate control device according to claim 1, wherein the flow rate sensor is provided upstream of the regulator.